State of Idaho
Department of Environmental Quality
Air Quality Division

AIR QUALITY PERMIT
STATEMENT OF BASIS

Permit to Construct No. P-2008.0130

Proposed for Public Comment

Tesoro Refining and Marketing Co.

Boise Terminal

Boise, Idaho

Facility ID No. 001-00093

October 16, 2008

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The purpose of this Statement of Basis is to satisfy the requirements of IDAPA 58.01.01.et seq, Rules for the Control of Air Pollution in Idaho, for issuing air permits.

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Acronyms, Units, and Chemical Nomenclature

AAC	acceptable ambient concentration
AFS	AIRS Facility Subsystem
AIRS	Aerometric Information Retrieval System
CAM	Compliance Assurance Monitoring
CFR	Code of Federal Regulations
CO	carbon monoxide
DEQ	Department of Environmental Quality
EL	screening emission level
EPA	U.S. Environmental Protection Agency
HAPs	hazardous air pollutants
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
lb/hr	pounds per hour
mg/m^3	milligrams per cubic meter
MACT	Maximum Achievable Control Technology
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO_X	nitrogen oxides
NSPS	New Source Performance Standards
PM	particulate matter
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
PSD	Prevention of Significant Deterioration
PTC	permit to construct
SIP	State Implementation Plan
SM	synthetic minor
SO_2	sulfur dioxide
TAP	Toxic Air Pollutant
Tesoro	Tesoro Refining and Marketing Co.
T/yr	tons per year
TOC	total organic compounds
VOC	volatile organic compound

1. FACILITY INFORMATION

1.1 Facility Description

Tesoro's Boise facility is a bulk gasoline terminal that receives liquid petroleum products via pipeline or trucks. The liquid products are stored on site in storage tanks and are transferred from the storage tanks to mobile tank trucks through a loading rack. Loading arms on the loading rack dispense the liquid product into the mobile tank trucks. When gasoline, including denatured ethanol, is loaded into mobile tank trucks, the vapors are collected in a vapor collection system and are oxidized in a vapor combustion unit.

1.2 Permitting Action and Facility Permitting History

This permitting action is for a minor modification at an existing minor facility. The following information was derived from a review of the permit files available to DEQ. Permit status is noted as active and in effect (A) or superseded (S).

May 23, 2006	P-050055, a PTC revision to revise several permit conditions without emissions increase. (A)
August 18, 2003	P-030041, a PTC revision to amend certain permit conditions and/or language without emissions increase. (S)
May 29, 2003	P-020052, a terminal upgrade project, the PTC served to limit the potential emissions rates of all regulated pollutants below major source thresholds. The facility triggered 40 CFR 60 Subpart XX due to this project update.(S)
February 28, 2002	DEQ received notification that Tesoro West Coast Co. had changed its name to Tesoro Refining and Marketing Co. effective January 1, 2002.
August 31, 2001	DEQ received notification from Amoco Oil Co. confirming ownership transfer of the Boise facility to Tesoro West Coast Co.
June 7, 1993:	PTC No. 001-00093 was issued to Amoco Oil Co. This was a modified version of PTC No. 0020-0093, and superseded the previous PTC. (S)
February 15, 1991	PTC No. 0020-0093 was issued to Amoco Oil Co. for a soil-vapor extraction project at the facility. (S)

2. APPLICATION SCOPE AND APPLICATION CHRONOLOGY

2.1 Application Scope

The applicant requested a PTC modification to allow for loading ethanol, or ethanol/gasoline blends at the loading rack.

2.2 Application Chronology

August 11, 2008	DEQ received the 15-day pre-permit construction application.
August 13, 2008	DEQ received the 15-day pre-permit construction application fee.

August 22, 2008	DEQ received additional application materials via email.
August 26, 2008	DEQ issued 15-day pre-permit construction approval.
September 2, 2008	DEQ received additional application materials via email.
September 9, 2008	DEQ issued application completeness letter.
October 7, 2008	DEQ issued draft permit for facility review. No comments were received.
October 10, 2008	DEQ received emission calculations for ethanol from Tank 2001 via email
October 16, 2008	DEQ issued proposed permit to the facility.

3. TECHNICAL ANALYSIS

3.1 Emission Unit and Control Device

Table 3.1 lists the emissions unit affected by this permitting action.

Table 3.1 EMISSION UNIT AND CONTROL DEVICE INFORMATION

Emissions Unit Description	Control Device Description	Emissions Discharge Point ID No. and/or Description
Loading rack	Vapor combustion system	Vapor combustion system stack
Tank 2001	Domed external floating roof tank	Tank vent
Bulk gasoline terminal (refer to 40 CFR 63 Subpart BBBBBB for details)	Varies	Varies

3.2 Emissions Inventory

The applicant requested a PTC modification to allow for loading ethanol, or ethanol/gasoline blends at the loading rack. The modification causes an emissions increase of ethanol. Table 3.2 summarizes the ethanol emissions increase from the loading rack.

Table 3.2 CONTROLLED TAP EMISSIONS SUMMARY [b, c]

TAP	Controlled	
	lb/hr	T/yr
Ethyl Alcohol (ethanol) [a]	19	9
Tank 2001	0.15	0.64

a. Ethanol is a non-carcinogenic TAP. It is not an HAP.
b. Detailed calculation can be found in Appendix B.
c. The permitting action does not increase VOC emissions because ethanol has lower vapor pressure than gasoline. Using ethanol does not increase facility-wide VOC emissions. Ethanol is not an HAP.

3.3 Ambient Air Quality Impact Analysis

Per DEQ's modeler, Kevin Schilling, although controlled emissions being less than screening emission levels (ELs) is not a specific compliance option listed in the Rules, unless combined with modeling uncontrolled emissions, the modeling link between ELs and acceptable ambient concentrations (AACs) assures that if controlled emissions are below ELs ambient concentrations will be below AACs and compliance will be demonstrated via IDAPA 58.01.01.210.08. Because the controlled ethanol emissions of this project are below ethanol EL of 125 pounds per hour, additional modeling is not required. The existing permit requirements will ensure that the controlled ethanol emissions rate is below ethanol EL.

3.4 Origin of Existing Emissions Limits

Emissions Unit No. 1 – Loading Rack

The following section addresses origin of each emissions limit in the existing PTC No. P-020052 issued May 29, 2003. For purposes of the PTC, the term "thermal oxidizing unit" refers solely to the vapor incineration unit. The term "thermal oxidizer system" refers to the thermal oxidizer unit and the vapor collection system, collectively.

3.4.1 Particulate Matter Emissions Limits for Incinerators– Permit Condition 2.3

Permit Condition 2.3 is taken directly from IDAPA 58.01.01.786.01, and is applicable to the thermal oxidizer unit because this unit is defined as an incinerator in accordance with IDAPA 58.01.01.006.

3.4.2 Visible Emissions Limit – Permit Condition 2.4

Permit Condition 2.4 is taken directly from IDAPA 58.01.01.625.02. Other than the sources listed in IDAPA 58.01.01.625.01, emissions from all stationary point sources in the state of Idaho are subject to the opacity standard; therefore, the thermal oxidizer unit must comply with this standard.

3.4.3 Total Organic Compound Emissions Limit – Permit Condition 2.5

The upgrade project permitted under PTC NO. P-020052 issued May 29, 2003 constitutes a modification to the existing loading rack; therefore, the unit is subject to the provisions of 40 CFR 60.500, Subpart XX. Permit Condition 2.5 is an applicable NSPS standard that applies to the thermal oxidizer system, and requires that the system does not emit more than 35 milligrams of TOC per liter of gasoline loaded into tank trucks.

3.4.4 Throughput Limits – Permit Condition 2.6

Permit Condition 2.6 sets an annual throughput limit on the amount of gasoline that can be loaded into tank trucks from the loading rack. The annual throughput at the loading rack contributes to the majority of VOC and HAP emissions at the facility. By restricting this throughput, DEQ assures that the facility will remain a synthetic minor source.

3.4.5 Air Pollution Emergency Rules – Permit Condition 2.10

This permit condition requires the permittee to comply with the Air Pollution Emergency Rules. This is a self-explanatory condition. Refer to IDAPA 58.01.01.550-562 for further information.

4. REGULATORY REVIEW

4.1 Attainment Designation (40 CFR 81.313)

The facility is located in Ada County which is designated as attainment for PM_{10} and CO, and unclassifiable for all other criteria air pollutants. There are no Class I areas within 10 kilometers of the facility. Reference 40 CFR 81.313.

4.2 Permit to Construct (IDAPA 58.01.01.201)

The applicant requested a PTC modification to allow for loading ethanol, or ethanol/gasoline blends at the loading rack. This operational change causes emissions increase of ethanol.

4.3 Tier II Operating Permit (IDAPA 58.01.01.401)

Not applicable.

4.4 Title V Classification (IDAPA 58.01.01.300, 40 CFR Part 70)

The facility is not a Tier I major facility as defined by IDAPA 58.01.01.008.10 for any criteria air pollutant, individual HAP, or combination of HAPs. Therefore, the Title V program does not apply.

4.5 PSD Classification (40 CFR 52.21)

The facility is not a major source as defined by IDAPA 58.01.01.205. Therefore, PSD does not apply.

4.6 NSPS Applicability (40 CFR 60)

No new NSPS requirement is triggered due to this permitting action.

4.7 NESHAP Applicability (40 CFR 61)

No new NESHAP requirements are triggered due to this permitting action.

4.8 MACT Applicability (40 CFR 63)

40 CFR 63 Subpart BBBBBB was promulgated January 10, 2008. It is for Source Category: Gasoline Distribution Bulk Terminals, Bulk Plants, and Pipeline Facilities, and applies to each area source bulk gasoline terminal that is not subject to MACT Subpart R or MACT Subpart CC. The following definitions are pertinent to determining MACT Subpart BBBBBB applicability to Tesoro's Boise Terminal:

Bulk gasoline terminal: *any gasoline storage and distribution facility that receives gasoline by pipeline, ship or barge, or cargo tank and has a gasoline throughput of 20,000 gallons per day or greater. Gasoline throughput shall be the maximum calculated design throughput as may be limited by compliance with an enforceable condition under Federal, State, or local law and discoverable by the Administrator and any other person*

The Boise Terminal received 98,951,993 gallons of gasoline in 2007 (an average of 271,101 gallons per day) and therefore qualifies as a bulk gasoline terminal as defined above. Because the Boise Terminal is not subject to MACT Subpart R or MACT Subpart CC, and is a gasoline storage and distribution facility that has a gasoline throughput of greater than 20,000 gallons per day, MACT Subpart BBBBBB is applicable. Per 40 CFR 63.11082, the affected source subject to MACT Subpart BBBBBB provisions is the area source bulk gasoline terminal, which includes gasoline storage tanks, gasoline loading racks, vapor collection-equipped gasoline cargo tanks, and equipment components in vapor or liquid gasoline service. Facilities must comply with MACT Subpart BBBBBB by different dates depending if the affected source is new, reconstructed, or existing. Per MACT Subpart A, the following definitions are important when characterizing if the affected source is new, reconstructed, or existing:

New Source: *any affected source the construction or reconstruction of which is commenced after the Administrator first proposes a relevant emission standard under this part establishing an emission standard applicable to such source.*

Reconstructed Source: *unless otherwise defined in a relevant standard, means the replacement of components of an affected or a previously nonaffected source to such an extent that the fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable new source ...*

Existing Source: *any affected source that is not a new source.*

The loading rack, all storage tanks that store gasoline, and equipment components in gasoline service will be subject to MACT Subpart BBBBBB. The affected source does not fall under the definition of a new source because the terminal was not reconstructed or constructed after November 9, 2006 at the

time of this permitting action. The physical changes to the loading rack associated with the proposed modification will not exceed 50 percent of the fixed capital cost that would be required to construct a comparable new affected source. Thus, the proposed changes that will occur to the affected source (i.e. the loading rack and the equipment components) will not constitute reconstruction.

As such, the Boise Terminal is considered an existing source under MACT Subpart BBBBBB at the time of this permitting action. Therefore, the Boise Terminal has until January 10, 2011 to comply with the provisions of MACT Subpart BBBBBB per 40 CFR 63.11 083(b). Tesoro submitted the required initial notification to the Administrator. Tesoro submitted the notification to DEQ which stated that the Boise Terminal is subject to MACT Subpart BBBBBB on May 09, 2008.

4.9 CAM Applicability (40 CFR 64)

The facility is not a Tier I major facility as defined by IDAPA 58.01.01.008.10 for any criteria air pollutant, individual HAP, or combination of HAPs. Therefore, CAM does not apply.

4.10 Permit Conditions Review

This section describes only those permit conditions that have been added, revised, modified or deleted as a result of this permitting action. The new text in each revised permit conditions is in bold.

The facility's analyses show that the facility will comply with all existing permit limits when using motor gasoline/denatured ethanol blends, and denatured ethanol at the facility. Therefore, these liquids are now permitted to be used at the facility.

4.10.1 Revised Permit Condition 2.6

The maximum annual motor gasoline**, motor gasoline/denatured ethanol blends, and denatured ethanol** throughput of the loading rack shall not exceed 280,000,000 gallons per year.

4.10.2 Revised Permit Condition 2.8

The permittee shall only use the loading rack to dispense motor gasoline, **motor gasoline/denatured ethanol blends, and denatured ethanol,** jet fuels, No. 1 diesel fuel, and No. 2 diesel fuel.

4.10.3 New Permit Condition 2.21

The facility is subject to 40 CFR 60 Subpart XX requirements regardless whether the requirements are included in the permit or not. New Permit Condition 2.21 stresses this concept. It reads:

"2.21 The permittee shall comply with 40 CFR 60 Subpart XX and Subpart A. Should, there be a conflict between 40 CFR 60 Subpart XX and Subpart A, and Permit Conditions 2.5, 2.9, 2.13, 2.14, 2.16, 2.17, 2.18 and 2.19, requirements in 40 CFR 60 Subpart XX and Subpart A shall govern."

4.10.4 New Permit Condition 3.1

Tesoro is subject to 40 CFR 63 Subpart BBBBBB as discussed in Section 4.8. New Permit Condition 3.1 is added to include the regulation in the permit.

"3.1 The permittee shall comply with 40 CFR 63 Subpart BBBBBB upon the compliance date as specified in 40 CFR 63.11083 (b)."

4.10.5 New Permit Conditions 3.2

As discussed in Section 4.8, at the time of this permitting action, the facility is an existing facility. The compliance date is January 10, 2011. As a reasonable permit condition, New Permit Condition 3.2 requires the facility to include the requirements that apply to the facility in the permit in the future.

"3.2 Upon the aforementioned compliance date, the permittee shall submit a complete PTC application to include 40 CFR 63 Subpart BBBBBB requirements that apply to the facility in the permit."

4.10.6 Delete Existing Table 3.1

Using current permit template this table is removed because it was for informational purpose and was not for listing permit limits.

5. PERMIT FEES

Table 5.1 lists the processing fee associated with this permitting action. The facility is subject to a processing fee of $1,000 because the amount of increases of regulated pollutant emissions is less than one ton per year. Refer to the chronology for fee receipt dates.

Table 5.1 PROCESSING FEE TABLE [a]

Emissions Inventory			
Pollutant	**Annual Emissions Increase (T/yr)**	**Annual Emissions Reduction (T/yr)**	**Annual Emissions Change (T/yr)**
NO_X	0.0	0	0.0
SO_2	0.0	0	0.0
CO	0.0	0	0.0
PM_{10}	0.0	0	0.0
VOC[a]	0.0	0	0.0
HAPS	0.0	0	0.0
Total:	0.0	0	**0.0**
Fee Due	**$ 1,000.00**		

a. The permitting action does not increase VOC emissions because ethanol has lower vapor pressure than gasoline. Using ethanol does not increase facility-wide VOC emissions. Ethanol is not an HAP.

6. PUBLIC COMMENT

An opportunity for public comment period on the PTC application was provided from September 16 to September 30, 2008 in accordance with IDAPA 58.01.01.209.01.c. During this time, there was a request for a public comment period on DEQ's proposed action.

Appendix A – AIRS Information

AIRS/AFS[a] FACILITY-WIDE CLASSIFICATION[b] DATA ENTRY FORM

Permittee/Facility Name: Tesoro Refining and Marketing Co. Boise Terminal
Facility Location: Boise, Idaho
AIRS Number: 001-00093

AIR PROGRAM POLLUTANT	SIP	PSD	NSPS (Part 60)	NESHAP (Part 61)	MACT (Part 63)	SM80	TITLE V	AREA CLASSIFICATION A-Attainment U-Unclassified N- Nonattainment
SO_2	B							U
NO_x	B							U
CO	B							A
PM_{10}	B							A
PT (Particulate)	B							
VOC	SM						SM	U
THAP (Total HAPs)	B							
			APPLICABLE SUBPART					
			XX		BBBBBB			

[a] Aerometric Information Retrieval System (AIRS) Facility Subsystem (AFS)

[b] AIRS/AFS Classification Codes:

A = Actual or potential emissions of a pollutant are above the applicable major source threshold. For HAPs only, class "A" is applied to each pollutant which is at or above the 10 T/yr threshold, **or** each pollutant that is below the 10 T/yr threshold, but contributes to a plant total in excess of 25 T/yr of all HAPs.

SM = Potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable regulations or limitations.

B = Actual and potential emissions below all applicable major source thresholds.

C = Class is unknown.

ND = Major source thresholds are not defined (e.g., radionuclides).

Appendix B – Emissions Inventory

The loading rack has a rated capacity of transferring liquid petroleum products to mobile tank tracks at 324,000 gallon per hour. It equals to total volume of displaced air in the tracks every hour. Assume the displaced air in the trucks is idea gas. Idea gas law is used to estimate ethanol in the displaced air that emits to the atmosphere.

1. Estimate uncontrolled ethanol emissions

n_{total} = (PV)/(RT) = (1 atm * 324,000 gal/hr) /(0.082 atm·L/mol·k * 293 k) = 51,048 mol/hr (after unit conversion)

$n_{ethanol} = n_{total} * P_{ethanol\ vapor\ pressure,\ 20\ c\ /} P_{total} =$ 51,048 mol/hr * 0.87 psi / 14.7 psi = 5.9×10^{-2} = 3,021 mol/hr

$E_{ethanol}$ = 3,021 mol/hr * 46 gram/mol = 306 lb/hr (after unit conversion)

Uncontrolled ethanol emissions from loading rack are 306 lb/hr.

2. Estimate uncaptured ethanol emissions

$E_{ethanol}$ = 306 lb/hr * (1-98.7%) = 4 lb/hr

3. Estimate undestroyed ethanol emissions from vapor combustion unit

$E_{ethanol}$ = (306 lb/hr - 4 lb/hr) * (1-95.1%) = 15 lb/hr

4. Ethanol emissions from Tank 2001 provided by the applicant: (1,289 lb/yr) / (8,760 hr/yr) = 0.15 lb/hr

Note: 8,760 hr/yr is provided by the applicant. It is a reasonable assumption for Tank 2001.

5. Ethanol emissions from equipment leakage provided by the applicant: 0.01 lb/hr.

Total hourly ethanol emissions due to this project are 4 lb/hr + 15 lb/hr + 0.15 lb/hr + 0.01 lb/hr = 19 lb/hr which are less than ethanol screening emissions level of 125 lb/hr.

Total annual ethanol emissions due to this project = (19 lb/hr) * (280,000,000 gal/yr) / (324,000 gal/hr) + 0.01 lb/hr *8760 hr/yr + 0.64 T/yr = 9 T/yr

Where,

- P: pressure
- V: volume
- R: universal gas constant
- n: moles
- E: emissions